A variety of visual settings occur throughout the Class III areas. Between Moab and Monticello, much of the landscape is characterized by gently to moderately rolling terrain that is abruptly dissected by dry, rocky arroyos. The predominantly red sandy soils are covered by moderately sparse vegetation composed of sagebrush, rabbitbrush, bunchgrasses, cheatgrass, piñon-pine, and juniper. Interspersed among the rolling hills are numerous red and beige sandstone outcrops, some occurring as isolated butte-like "islands" and others appearing as linear ridges and cliffs. Between Monticello and Blanding, the Class III areas are characterized more by rough-textured hills, ridges, and valleys that are thickly vegetated with sagebrush, piñon-pine, and juniper.

The Class IV areas south of Monticello and south of Blanding have been culturally modified by farming and ranching. The landscape is a gently to moderately rolling patchwork of plowed fields, green pastures, and cultivated wheat and alfalfa fields. Soils are predominantly red or dark reddish brown.

The Class II areas—Kane Springs Canyon, Long Canyon, and Recapture Creek—are characterized by steep, dissected canyons. The Kane Springs Canyon area contains the rugged red and beige ridges and cliffs of the Entrada Sandstone. These rocky ridges are sparsely vegetated with sagebrush and juniper. The canyons of Long Canyon and Recapture Creek are formed by the somewhat less rugged sandstone ridges and cliffs of the Burro Canyon Formation and Dakota Sandstone. The yellow-brown and tan rocks of these strata are covered with moderately dense piñon and juniper. Figure 3–44 and Figure 3–45 are photographs of the proposed pipeline crossings within Kane Springs Canyon and Recapture Creek, respectively.

Approximately 25 percent of the pipeline corridor, including those portions that cross Kane Springs Canyon and Recapture Creek, is visible to travelers on US-191. A 3- to 4-mile segment of the route that skirts the southwestern slope of Spanish Valley (Map 5, Appendix C) is visible to Moab residents and local traffic. The remaining 75 percent of the route is not visible to the general public.

## 3.5 Borrow Areas

Different types of borrow materials would be needed for cover materials. These materials range from silts and clays to riprap, or rock materials, that would be used to armor the sides of the disposal cell. Borrow areas that would provide these materials have been identified for each disposal alternative (see Figure 2–8). In some cases, a proposed borrow area would be used for more than one disposal alternative. Two of the proposed borrow areas (LeGrand Johnson and Papoose Quarry) are existing quarries, and specific information on rock materials present has been well documented. The proposed Floy Wash borrow area is near pits previously used by UDOT for highway materials. All other proposed borrow sources were selected on the basis of geologic reports and have not been field tested.

Once a disposal site was selected, the proposed borrow areas for that site would be evaluated for suitability by digging test pits and sampling boreholes. Borrow areas selected for analysis constitute an area larger than would be used. This would allow a contractor enough area to adequately test and configure the borrow area for project needs. For example, if the actual deposit of borrow material were not as deep as anticipated, a larger surface area would be required than if the deposit were thicker than anticipated. A larger area also would allow the contractor greater flexibility to avoid any sensitive resources encountered. Figure 2–8 shows the locations of the borrow areas.

### 3.5.1 Crescent Junction Borrow Area

The Crescent Junction borrow area is within the area designated as the Crescent Junction site area and, therefore, shares resource characteristics described in Section 3.3.

The general area is underlain by thick Mancos Shale that is composed primarily of mudstone with scattered thin beds of bentonite. The shallowest ground water is 3,000 ft deep in the Dakota Sandstone. No wetlands or federally regulated floodplains are present in this borrow area; however, during large storms, the nearby Crescent Wash will carry heavy flows of an indeterminate volume and lateral extent.

Air quality in this borrow area is expected to be similar to that described for the Moab, Crescent Junction, and Klondike Flats site alternatives. The Moab region is classified as an attainment area under the NAAQS (see Section 3.1.4 for further detail).

Wildlife diversity and densities are similar to those described in Section 3.3.9 and would be considered limited because of the semiarid climate, vegetation types, and habitat types present. However, the proximity of the Book Cliffs could increase the potential for cliff-dwelling raptors being present. Of the state listed sensitive species that are also protected under the MBTA, the ferruginous hawk and peregrine falcon are of primary concern. No important habitat has been identified for these or other non-federally protected wildlife species close to the Crescent Junction borrow area.

The Crescent Junction borrow area is located within the Crescent Junction site. Of the federally protected species listed in Table 3–32, the endangered black-footed ferret and white-tailed prairie dog (currently under review for federal listing) could potentially occur on and/or in the vicinity of the Crescent Junction borrow area.

UDWR (2003b) reported an unconfirmed sighting of the black-footed ferrets in the vicinity of the Crescent Junction borrow area in 1989. All black-footed ferrets currently in the wild are believed to be the result of a federal reintroduction program. It is highly unlikely that the black-footed ferrets reintroduced in Uinta and Duchesne Counties in 1999 or their offspring could occur on or in the vicinity of the Crescent Junction borrow area.

White-tailed prairie dog colonies around the Crescent Junction borrow area form a complex of colonies ranging in size from 10 acres to 2,445 acres (Seglund 2004). It is unknown to what extent individual colonies or a combination of colonies could support black-footed ferrets.

There is no designated or proposed critical habitat for the black-footed ferret in the vicinity of the Crescent Junction borrow area.

DOE, in consultation with USF&WS and BLM, would determine the need for habitat evaluations and surveys for species that may be affected.

The area surrounding the Crescent Junction borrow area is largely unpopulated. The nearest resident lives southeast of the I-70 interchange with US-191. Many unimproved dirt roads traverse the open country, and dispersed recreation, grazing, and oil and gas leasing occur in the general area, as described in Section 3.3.10.

Results of a Class I cultural resource inventory indicate that Class III cultural resource surveys have not been conducted at this site. Predictive modeling involving soil type and landform (Berry 2003) indicates that 1.9 cultural sites per square mile could be expected to occur within the borrow area. No data exist concerning the presence of potential traditional cultural properties on or near the borrow area. On the basis of Class I cultural resource inventory results, tribal interviews, and published and unpublished literature, the likelihood of occurrence and their estimated density on the site are low (on a scale of low-medium-high-extremely high).

County, federal, and state road access to the general site area is described in Section 3.1.17 and is shown on Figure 3–21. There is no direct access to this borrow area from the Crescent Junction interchange with I-70, and it is anticipated that roads would need to be constructed for access to the borrow materials. If the materials were used for the Crescent Junction site alternative, only minor road improvements would be required. However, if these materials were used for another disposal site alternative, roads would need to be constructed from Crescent Junction or from the proposed Williams Crescent Junction terminal to access US-191.

### 3.5.2 Floy Wash Borrow Area

The Floy Wash borrow area is in an area that has been previously used by UDOT for borrow materials. It is located about 7 miles west-southwest of Crescent Junction just south of I-70. Material from the existing pits is from terrace gravel deposits that are up to 20 ft thick. The terrace deposits contain gravel composed of quartzite, chert, limestone, and sandstone rock types derived from sources in the Book and Roan Cliffs to the north. The terrace deposits overlie the 3,000-ft-thick Mancos Shale and are underlain by the water-bearing Dakota Sandstone. A single, ephemeral wash, Floy Wash, is immediately adjacent to the area. No perennial streams, wetlands, or federally regulated floodplains are located within the borrow area. A more detailed description of potential riparian resources is included in Appendix F, "Floodplain and Wetlands Assessment and Floodplain Statement of Findings for Remedial Action at the Moab Site." Minor use of surface water is limited to wildlife and livestock watering during and immediately after storms.

Soils at the Floy Wash site are classified as Mesa-Trook complex (SCS 1989) and are formed on mixed alluvium and fan pediments and terraces derived predominantly from sandstone and conglomerate. These soils are very deep, well-drained, fine sandy loams near the surface; below a depth of about 24 inches, they become very gravelly fine sandy loam.

Vegetation commonly supported on these soils consists of shadscale, galleta grass, Indian ricegrass, and fourwing saltbush. Vegetation observed during a site visit in April 2003 was dominated by phacelia and prickly pear cactus and reflects the history of the site as a gravel quarry. Other species observed include milkvetch, kochia, Gardner saltbush, mat saltbush, bud sagebrush, galleta, globemallow, and cheatgrass.

Depending on the condition of the plant community, wildlife species that may inhabit this area include game species such as antelope and chukar. Desert cottontail, black-tailed jackrabbit, and various other small mammal species may also find suitable habitat in this area. Coyote, red-tailed hawks, golden eagles, and northern harriers may find suitable hunting grounds on the Mesa-Trook soils.

Wildlife population diversity and densities are similar to those described for the Klondike Flats site (Section 3.2.8). Vegetation and habitat are limited and, therefore, limit species diversity. The proximity to I-70 may also limit species diversity.

The general area consists of land administered by BLM and interspersed with SITLA lands. This site is within the existing Athena grazing allotment. Immediate access off I-70 is available, although CR-334 is a backcountry dirt road that is part of the old highway alignment and would connect to US-191, as described in Section 3.1.17 and shown on Figure 3–21.

The Floy Wash borrow area is located nearest to the Crescent Junction site. Of the federally protected species listed in Table 3–32, the endangered black-footed ferret and white-tailed prairie dog (currently under review for federal listing) could potentially occur on and/or in the vicinity of the Floy Wash borrow area.

UDWR (2003b) reported an unconfirmed sighting of the black-footed ferrets in the vicinity of the Floy Wash borrow area in 1989. All black-footed ferrets currently in the wild are believed to be the result of a federal reintroduction program. It is highly unlikely that the black-footed ferrets reintroduced in Uinta and Duchesne Counties in 1999 or their offspring could occur on or in the vicinity of the Floy Wash borrow area.

White-tailed prairie dog colonies around the Crescent Junction area, located a few miles east of the Floy Wash borrow area, form a complex of colonies ranging in size from 10 to 2,445 acres (Seglund 2004). It is unknown to what extent individual colonies or a combination of colonies could support black-footed ferrets.

There is no designated or proposed critical habitat for the black-footed ferret in the vicinity of the Floy Wash borrow area.

Results of Class I cultural resource inventories indicate that Class III surveys have not been conducted for this site. However, on the basis of predictive modeling involving soil type and landform (Berry 2003), it is estimated that 2.7 cultural sites per square mile could be expected to occur within the borrow area. No data exist concerning the presence of potential traditional cultural properties on or near the borrow area. On the basis of Class I cultural resource inventory results, tribal interviews, and published and unpublished literature, the likelihood of occurrence and their estimated density on the site are low (on a scale of low-medium-high-extremely high).

Noise levels at this site are expected to be comparable to noise levels associated with open desert areas. Vehicles on I-70 would constitute the nearest sources of man-made noise. However, activity at an existing borrow pit could also influence background noise levels. The site is situated on a broad, rolling, desert plain; it is sparsely vegetated with saltbush, cheatgrass, and prickly pear cactus. A 10- to 15-ft cut face exposes the types of borrow materials present. Around the site, distant canyons, buttes, and mesas form the background scenery. BLM assigns this area a Class III visual resource designation (Sweeten 2003) (Section 3.1.15 explains visual resource classes.) The borrow area is visible from I-70 and would be considered remote from populations.

### 3.5.3 Courthouse Syncline Borrow Area

The Courthouse Syncline borrow area is located several miles northwest of the Klondike Flats site. It is near the junction of Thompson and Crescent Washes in a broad open area of poorly developed drainages, where alluvial mud deposits less than 20 ft thick cover the surface. In addition to the alluvial mud deposits, some coarser-grained alluvial material (sand and gravel) also covers the surface of part of the site; this material has been transported from the Book Cliffs

down Thompson Wash. The geologic setting at the borrow area is similar to that at the Klondike Flats site. The only significant difference is that the Mancos Shale beneath the borrow area is more than 1,000 ft thick and several hundred feet thicker than at the Klondike Flats site. Section 3.2 provides general background information on this area.

Thompson and Crescent Washes are considered ephemeral and are tributaries to Tenmile Wash, which is a tributary to the Green River. Both washes are dry most of the year and are typical of the drainage features in this area. Flows occur only after large storms. Use of surface water from these drainage features is limited to wildlife and livestock watering during and immediately after storms. No perennial streams, wetlands, or federally regulated floodplains are known to exist in the borrow area, but nearby Thompson and Crescent Washes contain potential riparian vegetation (see Appendix F).

Air quality in this borrow area is expected to be similar to that described for the Moab, Crescent Junction, and Klondike Flats sites. The Moab region is classified as an attainment area under the NAAQS (see Section 3.1.4 for further detail).

Wildlife resources are similar to those described for the Klondike Flats site and are limited by the limited vegetation and habitat present. However, an ephemeral wash on the southern perimeter of the site may provide cover and habitat for small mammals. No critical winter or summer range has been identified for wildlife in this area.

This area is currently open rangeland (Little Grand grazing allotment) administered by BLM. No residential areas or roads provide access. Area access is described in Section 3.1.17 and shown on Figure 3–21.

The Courthouse Syncline borrow area is located nearest to the Klondike Flats site. Of the federally protected species listed in Table 3–25, the endangered black-footed ferret and white-tailed prairie dog (currently under review for federal listing) could potentially occur on and/or in the vicinity of the Courthouse Syncline borrow area.

UDWR (2003b) reported an unconfirmed sighting of black-footed ferrets in the vicinity of the Courthouse Syncline borrow area in 1989. All black-footed ferrets currently in the wild are believed to be the result of a federal reintroduction program. It is highly unlikely that the black-footed ferrets reintroduced in Uinta and Duchesne Counties in 1999 or their offspring could occur on or in the vicinity of the Courthouse Syncline borrow area.

Surveys for white-tailed prairie dogs have been conducted at the Klondike Flats site (BLM 1995). At that time, it was determined that all of the colonies were relatively small and isolated, such that they would not support black-footed ferrets.

There is no designated or proposed critical habitat for the black-footed ferret in the vicinity of the Courthouse Syncline borrow area.

DOE, in consultation with USF&WS and BLM, would determine the need for habitat evaluation and surveys for species that may be affected.

Results of a Class I cultural resources inventory indicate that Class III cultural resource surveys have not yet been conducted in this area. Predictive modeling involving soil type and landform

(Berry 2003) indicates that 22.4 to 27.4 cultural sites per square mile could be expected to occur within the borrow area. No data exist concerning the presence of potential traditional cultural properties on or near the borrow area. On the basis of Class I cultural resource inventory results, tribal interviews, and published and unpublished literature, the likelihood of their occurrence and estimated density on the site are low (on a scale of low-medium-high-extremely high).

This borrow area is remotely located on a flat to gently rolling alluvial plain that is dotted with greasewood shrubs and small bunches of grasses and forbs. Small-scale dune-like features on the soil surface, formed by winds, are prevalent throughout the site. Far north of the site and forming the horizon are the Book Cliffs, a linear geologic feature that trends east-west from Grand Junction, Colorado, to Price, Utah. BLM assigns this area a Class III visual resource designation (Sweeten 2003). The site is not visible to the public.

Neither background noise nor ground vibration data are available for the Courthouse Syncline borrow area. Noise levels at the Courthouse Syncline borrow area are expected to be comparable to noise levels associated with open desert areas, typically 22 to 38 dBA. The nearest source of man-made noise is traffic on US-191; however, the borrow area is 2.75 miles west of the highway and the contribution of noise to the background noise at the borrow site is minimal (less than 40 dBA). Railroad traffic on the Union Pacific rail line that runs parallel to US-191 also has a low potential to contribute to background noise and ground vibration.

### 3.5.4 Klondike Flats Borrow Area

This borrow area is within the Klondike Flats site. Section 3.2 describes the resources present. Of the federally protected species listed in Table 3–25, the endangered black-footed ferret and white-tailed prairie dog (currently under review for federal listing) could potentially occur on and/or in the vicinity of the Klondike Flats borrow area.

UDWR (2003b) reported an unconfirmed sighting of the black-footed ferret in the vicinity of the Klondike Flats borrow area in 1989. All black-footed ferrets currently in the wild are believed to be the result of a federal reintroduction program. It is highly unlikely that the black-footed ferrets reintroduced in Uinta and Duchesne Counties in 1999 or their offspring could occur on or in the vicinity of the Klondike Flats borrow area.

Surveys for white-tailed prairie dogs have been conducted at the Klondike Flats site (BLM 1995). At that time, it was determined that all of the colonies were relatively small and isolated, such that they would not support black-footed ferrets.

There is no designated or proposed critical habitat for the black-footed ferret in the vicinity of the Klondike Flats borrow area.

### 3.5.5 Tenmile Borrow Area

The Tenmile borrow area is located about 7 miles west of the Klondike Flats site. Rocks on the area surface are sandstones that are nearly flat lying; they consist of the Dewey Bridge Member of the Carmel Formation and the Slick Rock Member of the Entrada Sandstone. Other than small areas where sandstone is exposed, most of the area is covered by eolian sand. Ground water in the area is present at shallow depths (200 ft or less) in the Navajo Sandstone; springs emerge in draws near this site where the top of the Navajo Sandstone is exposed. No ephemeral or

perennial surface water features or resources have been identified within this area, but Tenmile Wash, an ephemeral stream with potential riparian and/or wetland resources, exists nearby (see Appendix F). Section 3.2 provides general background information on this area.

Soils and potential natural vegetation at the Tenmile borrow area are classified as Nakai fine sandy loam, described previously in Sections 3.2.1 and 3.2.2. However, approximately 25 percent of Nakai sandy loam at the Tenmile borrow area is covered with stabilized and active parabolic dunes consisting of fine sand. Ephedra is the common dune stabilizer in the area. Other common plants are sand sage, hopsage, Indian ricegrass, and wild buckwheat in fine sand areas and fourwing saltbush, jimmyweed, rabbitbrush, galleta, and yucca in sandy loam areas. Tamarisk and greasewood occur in areas with relatively shallow ground water.

Air quality in this area is expected to be similar to that described for the Moab, Crescent Junction, and Klondike Flats sites. The Moab region is classified as an attainment area under the NAAQS (see Section 3.1.4 for further detail).

Wildlife population diversity and densities in the vicinity of this site are similar to those described for the Klondike Flats site in Section 3.2.8. Because of the level of recreational activity in this area, densities may be further limited seasonally. No critical winter or summer range has been identified for wildlife in this area. Of the identified threatened, endangered, or sensitive species potentially present, the black-footed ferret is the primary species of concern. No critical habitat is present in this area.

The Tenmile borrow area is located nearest to the Klondike Flats site. Of the federally protected species listed in Table 3–25, the endangered black-footed ferret and white-tailed prairie dog (currently under review for federal listing) could potentially occur on and/or in the vicinity of the Tenmile borrow area.

UDWR (2003b) reported an unconfirmed sighting of the black-footed ferret in the vicinity of the Klondike Flats site in 1989. All black-footed ferrets currently in the wild are believed to be the result of a federal reintroduction program. It is highly unlikely that the black-footed ferrets reintroduced in Uinta and Duchesne Counties in 1999 or their offspring could occur on or in the vicinity of the Tenmile borrow area.

Surveys for white-tailed prairie dogs have been conducted at the Klondike Flats site (BLM 1995). At that time, it was determined that all of the colonies were relatively small and isolated, such that they would not support black-footed ferrets.

There is no designated or proposed critical habitat for the black-footed ferret in the vicinity of the Tenmile borrow area.

DOE, in consultation with USF&WS and BLM, would determine the need for habitat evaluations and surveys for species that may be affected.

Land in the area is administered by BLM. Blue Hills Road is the major access to this site, although the area is laced with interconnecting backcountry roads and trails. There is high recreational use in the general area. Traffic counters placed on Blue Hills Road received up to 80 vehicle counts per day over a 1-month period, indicating that at least 80 individuals accessed

this area daily over the period of record. Other uses in the area include grazing and oil and gas leasing. The nearest residence is approximately 9 miles east at the Canyonlands Field Airport.

Results of a Class I cultural resources inventory indicate that Class III cultural resource surveys have not yet been conducted in this area. Predictive modeling involving soil type and landform (Berry 2003) indicates that 22.4 to 27.4 cultural sites per square mile could be expected to occur within the borrow area. No data exist concerning the presence of potential traditional cultural properties on or near the borrow area. On the basis of Class I cultural resource inventory results, tribal interviews, and published and unpublished literature, the likelihood of their occurrence and estimated density on the site are low to medium (on a scale of low-medium-high-extremely high).

Neither background noise nor ground vibration data are available for the Tenmile borrow area. Noise levels at the Tenmile borrow area are expected to be comparable to noise levels associated with open desert areas, typically 22 to 38 dBA. The nearest source of man-made noise is traffic on US-191. The borrow area is about 8 miles from US-191, and no contribution of highway noise to the background noise at the borrow site is expected. Railroad traffic on the Union Pacific rail line that runs parallel to US-191 also has a little potential to contribute to background noise and ground vibration.

This borrow area is situated on gently rolling topography that is capped by small, hummocky sand dunes. Scattered sand sage shrubs, bunch grasses, and desert primrose impart a rough texture to the lands and create a pleasing contrast to the pale red soils. Dominating the near-background are steep sandstone cliffs striated with red, beige, and tan rock strata. BLM currently assigns this area a Class IV visual resource designation (Sweeten 2003). This borrow area is highly visible to travelers on the adjacent road.

Access to the general area is described in Section 3.1.17 and shown on Figure 3–21.

### 3.5.6 Blue Hills Road Borrow Area

The Blue Hills Road borrow area is located about 4 miles south of the Klondike Flats site. A variety of rock types composing the Cedar Mountain Formation are exposed at this site. These rock types include mudstone, sandstone, gritstone, conglomerate, and limestone. Alluvial and eolian deposits cover bedrock in some areas within this borrow area. Ground water is at least 600 ft deep in the Entrada and Navajo Sandstones. Section 3.2 provides general background information on this area.

Soils at the Blue Hills Road borrow area are classified as Nakai fine sandy loam and the Toddler-Ravola-Glenton association. These soils and the potential natural vegetation are described in Sections 3.2.1 and 3.2.2.

A single, unnamed ephemeral wash, a tributary to Bartlett Wash and, therefore, to the Colorado River, is within the boundary of disturbance identified for this borrow area. No perennial surface waters, wetlands, or federally regulated floodplains are present within the boundaries of the borrow area, but a small spring with associated wetland vegetation exists directly adjacent to the southwestern boundary (see Appendix F).

Air quality in this area is expected to be similar to that described for the Moab, Crescent Junction, and Klondike Flats site alternatives. The Moab region is classified as an attainment area under the NAAQS (see Section 3.1.4 for further detail).

Wildlife population diversity and densities in the vicinity of this borrow area are similar to those already described for the Klondike Flats site (see Section 3.2.8). Because of the high level of recreational activity in the area and proximity of Blue Hills Road, densities and diversity are further limited. No critical winter or summer range has been identified for wildlife in this area.

The Blue Hills borrow area is located nearest to the Klondike Flats site. Of the federally protected species listed in Table 3–25, the endangered black-footed ferret and white-tailed prairie dog (currently under review for federal listing) could potentially occur on and/or in the vicinity of the Blue Hills borrow area.

UDWR (2003b) reported an unconfirmed sighting of black-footed ferrets in the vicinity of the Klondike Flats site in 1989. All black-footed ferrets currently in the wild are believed to be the result of a federal reintroduction program. It is highly unlikely that the black-footed ferrets reintroduced in Uinta and Duchesne Counties in 1999 or their offspring could occur on or in the vicinity of the Blue Hills borrow area.

Surveys for white-tailed prairie dogs have been conducted at the Klondike Flats site (BLM 1995). At that time, it was determined that all of the colonies were relatively small and isolated, such that they would not support black-footed ferrets.

There is no designated or proposed critical habitat for the black-footed ferret in the vicinity of the Blue Hills borrow area.

DOE, in consultation with USF&WS and BLM, would determine the need for habitat evaluation and surveys for species that may be affected.

Oil and gas leases are in the area, but no oil or gas leases are currently active. A potassium permit was issued in 2001. Grazing occurs within the Arth's Pasture Grand grazing allotment. The closest residential property is adjacent to the Canyonlands Field Airport, approximately 3 miles east.

Results of a Class I cultural resource inventory indicate that Class III cultural resource surveys have not been conducted at this site. Predictive modeling involving soil type and landforms (Berry 2003) indicates that 1.9 to 27.4 cultural sites per square mile could be expected to occur within the borrow area. No data exist concerning the presence of potential traditional cultural properties on or near the borrow area. On the basis of Class I cultural resource inventory results, tribal interviews, and published and unpublished literature, the likelihood of occurrence and their estimated density on the site are low (on a scale of low-medium-high-extremely high).

Neither background noise nor ground vibration data are available for the Blue Hills Road borrow area. Noise levels at the Blue Hills Road borrow area are expected to be comparable to noise levels associated with open desert areas, typically 22 to 38 dBA. The nearest source of man-made noise is traffic on US-191. The borrow area is about 3 miles from the highway, and the contribution of noise to the background noise at the borrow site is minimal. Railroad traffic on

the Union Pacific rail line that runs parallel to US-191 also has a low potential to contribute to background noise and ground vibration.

This borrow area is located on a smooth, flat, desert plain with evenly scattered bunchgrasses and forbs. The light- and dark-green plants form a moderate contrast with the pale, reddish-beige soils. In the immediate background, steep hillsides rise from the valley floor and form conical and horizontal features. BLM assigns this area a Class III visual resource designation (Sweeten 2003). This site is visible to travelers on Blue Hills Road.

### 3.5.7 LeGrand Johnson Borrow Area

This privately owned existing commercial gravel pit is located about 8 miles south of Moab along US-191 in Spanish Valley (see Figure 2–8). It has an estimated available volume of 600,000 $yd^3$ of sand, gravels, and road base materials. No federally protected species are known to occur at the LeGrand Johnson borrow area.

### 3.5.8 Papoose Quarry Borrow Area

This existing commercial quarry, operated by the Cotter Corporation on state lands, has an estimated available large rock volume of 13 million $yd^3$. It is located in Lisbon Valley south of SR-46 and at the intersection of CR-113 and CR-370 (see Figure 2–8). No federally protected species are known to occur at the Papoose Quarry borrow area.

### 3.5.9 Blanding Borrow Area

This borrow area, located north of the White Mesa Mill site and northeast of Blanding, is near existing sand and gravel pits. Section 3.4 provides area resource information.

Recapture Creek, a perennial stream, is located within this site area. Surface flow information is unavailable. There is also an intermittent stream present, and both it and Recapture Creek are vegetated by tamarisk, cottonwood, willow, and shrub oak (BLM 2003c). These streams would need a more detailed water resource inventory should this site be chosen. Wildlife present is believed to be similar to that described in Section 3.4.9. Compared to other borrow areas under consideration, this site is believed to support greater diversity and abundance of wildlife. Mule deer migration routes have been identified south of this site in T. 33 S. to T. 35 S. and within ranges both east and west of US-191. Critical winter range is found in T. 35 S. to T. 37 S. and in ranges east of US-191. Restrictions are in effect from November 15 to April 30 of each year.

Of the federally protected species that could be potentially present in the Blanding borrow area (Table 3–51), the Gunnison sage grouse, a federal candidate species, is of primary concern. The Blanding borrow area lies within a Gunnison sage grouse conservation area (Sage Grouse Working Group 2000). High quality habitat for the Gunnison sage grouse has been designated in T. 31 S.–T. 33 S., R. 24 E. (Maps 10 and 11, Appendix C). The burrowing owl may also be present in the Blanding borrow area.

This site is easily accessible from US-191 (see Section 3.4.15) and is on land administered by BLM. It is within a designated transportation and utility corridor and is open to off-highway vehicle use. Other existing uses include grazing and mineral, oil, and gas leasing.

The cultural history of the Blanding borrow area is included in the more general cultural history of southeastern Utah described in Section 3.1.13.1.

Results of the Class I inventory indicate that Class III cultural resource surveys have not been completed for most of the Blanding borrow area. However, one Pueblo II (A.D. 900–1150) habitation site, eligible for inclusion in the National Register of Historic Places, has been documented in the area. On the basis of nearby archaeological surveys (Davis et al. 2003), it is estimated that approximately 56 cultural sites (or 45 sites eligible for inclusion in the National Register of Historic Places) per square mile could be expected to occur within or near the borrow area. The Blanding borrow area is an important plant gathering area for White Mesa Utes and is important to the traditional route from Allen Canyon/Cottonwood Wash area to the White Mesa community. Recent interviews (Fritz 2004) with tribal members indicate that at least two potential traditional cultural properties associated with the Ute Tribe exist on or near the proposed borrow area. These are "potential" traditional cultural properties because their eligibility for National Register status has yet to be determined; this determination would be made during the Section 106 consultation process. In this area, the likelihood of occurrence of traditional cultural properties and their estimated density are extremely high (on a scale of low-medium-high-extremely high) and are likely associated with the Ute Tribe, Navajo Nation, and Hopi Tribe (Fritz 2004). Traditional cultural properties on or near the site may include sacred gathering areas, sacred ceremonial sites, sacred healing areas, sacred springs, and burial areas.

Neither background noise nor ground vibration data are available for this borrow area. Noise levels at the IUC off-site borrow area are expected to be comparable to noise levels associated with open desert areas, typically 22 to 38 dBA. The nearest source of man-made noise is traffic on US-191 that passes through the northern part of this site. The community of Blanding is located about 1 mile from the southwest corner of the site. Background noise levels at the site would be influenced by traffic on US-191 and could raise noise levels to about 60 dBA measured 50 ft from roadside. There are no rail lines near the borrow area.

This site is located on a hilltop overlooking US-191. The beige soil material within the existing open borrow pits contrasts sharply with the smooth, rolling, dark-green hills surrounding the site. BLM assigns this area a Class III visual resource designation (Sweeten 2003). The site is currently visible for approximately 5 to 10 seconds to southbound travelers on US-191. Northbound travelers do not see the site.

### 3.5.10 White Mesa Mill Borrow Area

The White Mesa Mill borrow area is located south of Blanding within the IUC property boundary. This borrow area contains clay from the upper part of the Brushy Basin Member of the Morrison Formation that contains about 90 percent bentonite. The geologic setting is about 200 ft lower stratigraphically than at the White Mesa Mill site. Ground water is present in a perched shallow system in the Dakota Sandstone and Burro Canyon Formations. It emerges in seeps at the base of the Burro Canyon Formation in the slopes of the canyon above the borrow area. Ground water directly beneath the borrow area is in the deeper artesian aquifer of the Entrada and Navajo Sandstones. A description of area resources is provided in Section 3.4.

This site is remotely located at the head of a broad, deeply dissected canyon. Composed of valley bottoms and steep hill slopes, the area is a colorful mix of gray, maroon, and pale-green rock strata that are dotted with dark-green piñon and juniper trees. BLM-managed land surrounding

this privately owned borrow area is designated Class III (Sweeten 2003). Because of its remote location, this site is not visible to the public.

Of the federally protected species that could be potentially present in the White Mesa Mill borrow area (Table 3–44), the Gunnison sage grouse, a federal candidate species, is of primary concern. The White Mesa Mill borrow area lies within the White Mesa Mill site which itself lies within a Gunnison sage grouse conservation area (Sage Grouse Working Group 2000). However, this species is not known to occur at the White Mesa Mill site (IUC 2003).

The cultural history of the on-site IUC borrow area is included in the more general cultural history of southeastern Utah described in Section 3.1.13.1.

Results of the Class I inventory (Davis et al. 2003) indicate that a Class III survey was conducted at this borrow area in 1980 as part of the larger cultural resource inventory of the White Mesa Mill site. Six cultural sites are documented within the boundaries of the borrow area. Of these, three sites are eligible for inclusion in the National Register of Historic Places. One is a Pueblo II (A.D. 900–1150) permanent habitation site, one is a permanent habitation site of indeterminate age, and one is a General Pueblo (A.D. 750–1300) limited activity site. The White Mesa Mill borrow area is an important plant gathering area for White Mesa Utes and is important to the traditional route from Allen Canyon/Cottonwood Wash area to the White Mesa community. Ongoing interviews with White Mesa elders have identified burial sites in the area. Recent interviews (Fritz 2004) with tribal members indicate that at least three potential traditional cultural properties associated with the Ute Tribe exist on or near the proposed borrow area. These are "potential" traditional cultural properties because their eligibility for National Register status has yet to be determined; this determination would be made during the Section 106 consultation process. In this area, the likelihood of occurrence of traditional cultural properties and their estimated density are extremely high (on a scale of low-medium-high-extremely high) and are likely associated with the Ute Tribe, Navajo Nation, and Hopi Tribe (Fritz 2004). Traditional cultural properties on or near the site may include sacred gathering areas, sacred ceremonial sites, sacred healing areas, sacred springs, and burial areas.

Neither background noise nor ground vibration data are available for this borrow area. Noise levels at this borrow area reside within the boundaries of the White Mesa Mill site. Background levels are expected to be comparable to noise levels associated with open desert areas, with some influence from existing White Mesa Mill operations that are centered about 1 mile to the north of the borrow area. These noise levels could approach 50 to 60 dBA at the borrow area as a result of operations at the White Mesa Mill facilities. US-191 passes about 1 mile to the east of the designated borrow area. Background noise levels at the site would be influenced by traffic on US-191. There are no rail lines near the borrow area.

## 3.6 References

10 *Code of Federal Regulations* (CFR) 40, U.S. Nuclear Regulatory Commission, "Domestic Licensing of Source Material."

10 CFR 100, U.S. Nuclear Regulatory Commission, "Reactor Site Criteria."